

APS SEARCH
LOGIC

- C. LAYARD

9/18/98

s pacemaker and respiration sensor

3161 PACEMAKER
6868 RESPIRATION
207197 SENSOR
59 RESPIRATION SENSOR
(RESPIRATION(W) SENSOR)
L1 14 PACEMAKER AND RESPIRATION SENSOR

=> d 1-14

1. 5,701,894, Dec. 30, 1997, Modular physiological computer-recorder; Isaac R. Cherry, et al., 600/300; 128/904; 600/509, 546 [IMAGE AVAILABLE]

✓ 2. 5,540,727, Jul. 30, 1996, Method and apparatus to automatically optimize the pacing mode and pacing cycle parameters of a dual chamber **pacemaker**; Bruce A. Tockman, et al., 607/18, 17 [IMAGE AVAILABLE]

3. 5,458,622, Oct. 17, 1995, Implantable medical interventional device with shifting zones of tachycardia recognition and therapy; Eckhard Alt, 607/15 [IMAGE AVAILABLE]

4. 5,441,524, Aug. 15, 1995, Energy efficient multiple sensor cardiac **pacemaker**; John C. Rueter, et al., 607/18 [IMAGE AVAILABLE]

5. 5,431,685, Jul. 11, 1995, Implantable medical interventional device with criteria modification to enhance recognition of Tachycardia; Eckhard Alt, 607/6; 600/518 [IMAGE AVAILABLE]

✓ 6. 5,404,877, Apr. 11, 1995, Leadless implantable sensor assembly and a cardiac emergency warning alarm; James A. Nolan, et al., 600/484, 547; 607/2, 6, 20, 63 [IMAGE AVAILABLE]

⑦ 5,403,355, Apr. 4, 1995, Implantable medical interventional device with atrial dysrhythmia therapy for tachycardia; Eckhard Alt, 607/9 [IMAGE AVAILABLE]

8. 5,370,667, Dec. 6, 1994, Device and method for automatically adjusting tachycardia recognition criteria based on detected parameter; Eckhard Alt, 607/19 [IMAGE AVAILABLE]

★ ⑨ 5,356,425, Oct. 18, 1994, Method and apparatus for treatment of atrial fibrillation and flutter; Gust H. Bardy, et al., 607/14 [IMAGE AVAILABLE]

10. 5,197,467, Mar. 30, 1993, Multiple parameter rate-responsive cardiac stimulation apparatus; Bruce M. Steinhaus, et al., 607/20; 600/547 [IMAGE AVAILABLE]

⑪ 5,078,134, Jan. 7, 1992, Portable device for sensing cardiac function and automatically delivering electrical therapy; Marlin S. Heilman, et al., 607/4; 600/508, 547; 607/10, 142 [IMAGE AVAILABLE]

✓ 12. 5,063,927, Nov. 12, 1991, Rate-responsive **pacemaker**; Stuart C. Webb, et al., 607/18, 19, 20, 21, 22, 23, 25 [IMAGE AVAILABLE]

✓ 13. 5,044,365, Sep. 3, 1991, Rate-responsive **pacemaker**; Stuart C. Webb, et al., 607/18; 600/595; 607/19, 20, 31 [IMAGE AVAILABLE]

52

NOT
REPRODUCED

SMALL

320

Fig. 5a & 5b

94,216

CP APR. # 299820

14. 4,928,690, May 29 1990, Portable device for sensing cardiac function and automatically delivering electrical therapy, Marlin S. Heilman, et al., 607/4; 600/509, 515; 607/10, 142 [IMAGE AVAILABLE]

P.2

SARVE
175 11

> d hist

(FILE 'USPAT' ENTERED AT 08:20:31 ON 18 SEP 1998)

L1 37 S PACEMAKER AND RESPIRATION SENS?
 L2 5 S L1 AND METABOLIC INDIC?
 L3 10 S L1 AND METABOLIC DEMAND
 L4 10 S L2 OR L3

=> d 1-10

1. 5,800,470, Sep. 1, 1998, Respiratory muscle electromyographic rate responsive **pacemaker**; Paul M. Stein, et al., 607/20, 18 [IMAGE AVAILABLE]
2. 5,653,735, Aug. 5, 1997, Implantable cardiac stimulation device having an improved backup mode of operation and method thereof; Paris Chuan Chen, et al., 607/9 [IMAGE AVAILABLE]
3. 5,524,632, Jun. 11, 1996, Method for implanting electromyographic sensing electrodes; Paul M. Stein, et al., 600/546; 128/898, 899; 607/20 [IMAGE AVAILABLE]
4. 5,404,877, Apr. 11, 1995, Leadless implantable sensor assembly and a cardiac emergency warning alarm; James A. Nolan, et al., 600/484, 547; 607/2, 6, 20, 63 [IMAGE AVAILABLE]
5. 5,300,093, Apr. 5, 1994, Apparatus and method for measuring, formatting and transmitting combined intracardiac impedance data and electrograms; Ken Koestner, et al., 607/32 [IMAGE AVAILABLE]
6. 5,197,467, Mar. 30, 1993, Multiple parameter rate-responsive cardiac stimulation apparatus; Bruce M. Steinhaus, et al., 607/20; 600/547 [IMAGE AVAILABLE]
7. 5,188,106, Feb. 23, 1993, Method and apparatus for chronically monitoring the hemodynamic state of a patient using doppler ultrasound; Tibor A. Nappholz, et al., 607/24; 128/DIG.13; 600/454 [IMAGE AVAILABLE]
8. 5,183,040, Feb. 2, 1993, Apparatus and method for detecting abnormal cardiac rhythms using an ultrasound sensor in an arrhythmia control system; Tibor A. Nappholz, et al., 607/4; 600/439, 450, 453 [IMAGE AVAILABLE]
9. 5,156,154, Oct. 20, 1992, Monitoring the hemodynamic state of a patient from measurements of myocardial contractility using doppler ultrasound techniques; Harry L. Valenta, Jr., et al., 600/455, 450 [IMAGE AVAILABLE]
10. 5,139,020, Aug. 18, 1992, Method and apparatus for controlling the hemodynamic state of a patient based on systolic time interval measurements detecting using doppler ultrasound techniques; Ken Koestner, et al., 607/24; 600/456, 467, 519 [IMAGE AVAILABLE]

P. 4

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*           W E L C O M E   T O   T H E
*           U . S .   P A T E N T   T E X T   F I L E
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=> s pacemaker and respiration sens?

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          3161 PACEMAKER
          6868 RESPIRATION
        708373 SENS?
          119 RESPIRATION SENS?
            (RESPIRATION(W)SENS?)
L1          37 PACEMAKER AND RESPIRATION SENS?

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=> d 1-37

1. 5,800,470, Sep. 1, 1998, Respiratory muscle electromyographic rate responsive **pacemaker**; Paul M. Stein, et al., 607/20, 18 [IMAGE AVAILABLE]
2. 5,749,906, May 12, 1998, Dual chamber pacing system and method with continual adjustment of the AV escape interval so as to maintain optimized ventricular pacing for treating cardiomyopathy; Robert S. Kieval, et al., 607/9 [IMAGE AVAILABLE]
3. 5,716,383, Feb. 10, 1998, Dual chamber pacing system and method with continual adjustment of the AV escape interval so as to maintain optimized ventricular pacing for treating cardiomyopathy; Robert S. Kieval, et al., 607/9 [IMAGE AVAILABLE]
4. 5,713,930, Feb. 3, 1998, Dual chamber pacing system and method with control of AV interval; Johannes S. van der Veen, et al., 607/25 [IMAGE AVAILABLE]
5. 5,702,427, Dec. 30, 1997, Verification of capture using pressure waves transmitted through a pacing lead; Robert M. Ecker, et al., 607/28, 36, 37 [IMAGE AVAILABLE]
6. 5,701,894, Dec. 30, 1997, Modular physiological computer-recorder; Isaac R. Cherry, et al., 600/300; 128/904; 600/509, 546 [IMAGE AVAILABLE]
7. 5,653,735, Aug. 5, 1997, Implantable cardiac stimulation device having an improved backup mode of operation and method thereof; Paris Chuan Chen, et al., 607/9 [IMAGE AVAILABLE]
8. 5,626,620, May 6, 1997, Dual chamber pacing system and method with continual adjustment of the AV escape interval so as to maintain optimized ventricular pacing for treating cardiomyopathy; Robert S. Kieval, et al., 607/9, 28 [IMAGE AVAILABLE]
9. 5,601,615, Feb. 11, 1997, Atrial and ventricular capture detection and threshold-seeking **pacemaker**; H. T. Markowitz, et al., 607/28 [IMAGE AVAILABLE]
10. 5,540,732, Jul. 30, 1996, Method and apparatus for impedance detecting and treating obstructive airway disorders; Roy L. Testerman, 607/42 [IMAGE AVAILABLE]
11. 5,540,731, Jul. 30, 1996, Method and apparatus for pressure detecting and treating obstructive airway disorders; Roy L. Testerman, 607/42 [IMAGE AVAILABLE]
12. 5,540,727, Jul. 30, 1996, Method and apparatus to automatically

optimize the pacing mode and pacing cycle parameters of a dual chamber
pacemaker; Bruce A. Toan, et al., 607/18, 17 [IMAGE AVAILABLE]

P.5

13. 5,534,016, Jul. 9, 1996, Dual chamber pacing system and method utilizing detection of ventricular fusion for adjustment of the atrial-ventricular delay as therapy for hypertrophic obstructive cardiomyopathy; Willem Boute, 607/9 [IMAGE AVAILABLE]

14. 5,527,347, Jun. 18, 1996, Dual chamber pacing system and method with automatic adjustment of the AV escape interval for treating cardiomyopathy; Michael B. Shelton, et al., 607/9 [IMAGE AVAILABLE]

15. 5,524,632, Jun. 11, 1996, Method for implanting electromyographic sensing electrodes; Paul M. Stein, et al., 600/546; 128/898, 899; 607/20 [IMAGE AVAILABLE]

16. 5,514,163, May 7, 1996, Dual chamber pacing system and method with optimized adjustment of the AV escape interval for treating cardiomyopathy; H. Toby Markowitz, et al., 607/9 [IMAGE AVAILABLE]

17. 5,507,782, Apr. 16, 1996, Method and apparatus for dual chamber cardiac pacing; Robert S. Kieval, et al., 607/9, 28, 30, 32 [IMAGE AVAILABLE]

18. 5,480,441, Jan. 2, 1996, Rate-responsive heart **pacemaker**; Terrence R. Hudrlik, 607/17, 9 [IMAGE AVAILABLE]

19. 5,464,435, Nov. 7, 1995, Parallel processors in implantable medical device; Robert A. Neumann, 607/9 [IMAGE AVAILABLE]

20. 5,458,622, Oct. 17, 1995, Implantable medical interventional device with shifting zones of tachycardia recognition and therapy; Eckhard Alt, 607/15 [IMAGE AVAILABLE]

21. 5,441,524, Aug. 15, 1995, Energy efficient multiple sensor cardiac **pacemaker**; John C. Rueter, et al., 607/18 [IMAGE AVAILABLE]

22. 5,431,685, Jul. 11, 1995, Implantable medical interventional device with criteria modification to enhance recognition of Tachycardia; Eckhard Alt, 607/6; 600/518 [IMAGE AVAILABLE]

23. 5,404,877, Apr. 11, 1995, Leadless implantable sensor assembly and a cardiac emergency warning alarm; James A. Nolan, et al., 600/484, 547; 607/2, 6, 20, 63 [IMAGE AVAILABLE]

24. 5,403,355, Apr. 4, 1995, Implantable medical interventional device with atrial dysrhythmia therapy for tachycardia; Eckhard Alt, 607/9 [IMAGE AVAILABLE]

25. 5,370,667, Dec. 6, 1994, Device and method for automatically adjusting tachycardia recognition criteria based on detected parameter; Eckhard Alt, 607/19 [IMAGE AVAILABLE]

26. 5,356,425, Oct. 18, 1994, Method and apparatus for treatment of atrial fibrillation and flutter; Gust H. Bardy, et al., 607/14 [IMAGE AVAILABLE]

27. 5,300,093, Apr. 5, 1994, Apparatus and method for measuring, formatting and transmitting combined intracardiac impedance data and electrograms; Ken Koestner, et al., 607/32 [IMAGE AVAILABLE]

28. 5,197,467, Mar. 30, 1993, Multiple parameter rate-responsive cardiac stimulation apparatus; Bruce M. Steinhaus, et al., 607/20; 600/547 [IMAGE AVAILABLE]

29. 5,188,106, Feb. 23, 1993, Method and apparatus for chronically monitoring the hemodynamic state of a patient using doppler ultrasound; Tibor A. Nappholz, et al., 607/24; 128/DIG.13; 600/454 [IMAGE AVAILABLE]
30. 5,183,040, Feb. 2, 1993, Apparatus and method for detecting abnormal cardiac rhythms using an ultrasound sensor in an arrhythmia control system; Tibor A. Nappholz, et al., 607/4; 600/439, 450, 453 [IMAGE AVAILABLE]
31. 5,156,157, Oct. 20, 1992, Catheter-mounted doppler ultrasound transducer and signal processor; Harry L. Valenta, Jr., et al., 600/463, 467 [IMAGE AVAILABLE]
32. 5,156,154, Oct. 20, 1992, Monitoring the hemodynamic state of a patient from measurements of myocardial contractility using doppler ultrasound techniques; Harry L. Valenta, Jr., et al., 600/455, 450 [IMAGE AVAILABLE]
33. 5,139,020, Aug. 18, 1992, Method and apparatus for controlling the hemodynamic state of a patient based on systolic time interval measurements detecting using doppler ultrasound techniques; Ken Koestner, et al., 607/24; 600/456, 467, 519 [IMAGE AVAILABLE]
34. 5,078,134, Jan. 7, 1992, Portable device for sensing cardiac function and automatically delivering electrical therapy; Marlin S. Heilman, et al., 607/4; 600/508, 547; 607/10, 142 [IMAGE AVAILABLE]
35. 5,063,927, Nov. 12, 1991, Rate-responsive **pacemaker**; Stuart C. Webb, et al., 607/18, 19, 20, 21, 22, 23, 25 [IMAGE AVAILABLE]
36. 5,044,365, Sep. 3, 1991, Rate-responsive **pacemaker**; Stuart C. Webb, et al., 607/18; 600/595; 607/19, 20, 31 [IMAGE AVAILABLE]
37. 4,928,690, May 29, 1990, Portable device for sensing cardiac function and automatically delivering electrical therapy; Marlin S. Heilman, et al., 607/4; 600/509, 515; 607/10, 142 [IMAGE AVAILABLE]